

CLAIMS

What is claimed is:

1. A heater assembly for a wafer processing chamber, comprising:
 - an electrically operated heating platform;
 - a sleeve having a hollow interior;
 - an electrical conductor disposed within the hollow interior of the sleeve and connected to the electrically operated heating platform; and
 - a base plate assembly adapted to support the sleeve within the chamber so as to provide a non-airtight junction at a first end of the sleeve where it contacts the electrically operated heating platform.
2. The heater assembly of claim 1, wherein the electrically operated heating platform includes a heater plate that is adapted to support a wafer.
3. The heater assembly of claim 2, wherein the electrically operated heating platform includes a heater element embedded within the heater plate.
4. The heater assembly of claim 3, wherein the heater element is a resistive heating element.
5. The heater assembly of claim 1, wherein the sleeve is ceramic.
6. The heater assembly of claim 5, wherein the sleeve is aluminum oxide.
7. The heater assembly of claim 5, wherein the sleeve is aluminum nitride.
8. The heater assembly of claim 1, wherein the base plate assembly is metallic.
9. The heater assembly of claim 1, further comprising an elastomeric gasket included within the base plate assembly and adapted to provide a seal at a second end of the sleeve where it contacts the base plate assembly.
10. The heater assembly of claim 9, where in the seal at the second end of the sleeve is an airtight seal.

11. The heater assembly of claim 9, wherein the elastomeric gasket is further adapted to provide a spring force at the second end of the sleeve to maintain contact of the first end of the sleeve with the electrically operated heating platform.
12. The heater assembly of claim 1, wherein the base plate assembly includes a coolant manifold adapted for coolant flow therein.
13. The heater assembly of claim 1, further comprising at least one purge gas manifold within the base plate assembly adapted to provide a fluid path to the hollow interior of the sleeve.
14. The heater assembly of claim 13, wherein the base plate assembly comprises a lower base plate coupled to an upper base plate.
15. The heater assembly of claim 14, further comprising an insulator located between the lower base plate and upper base plate and surrounding a portion of the electrical conductor which passes through the insulator within the base plate assembly.
16. The heater assembly of claim 15, further comprising an insulator seal adapted to prevent fluid leakage from a junction between the purge gas manifold, the insulator and the upper base plate.
17. The heater assembly of claim 16, further comprising, a stabilizer countersunk flush with an upper surface of the lower base plate so as to create a mating surface with the insulator which is countersunk flush with a lower surface of the upper base plate, the stabilizer being adapted to support the electrical conductor and to cooperate with a conductor seal surrounding the electrical conductor and located at the mating surface to prevent fluid from the purge gas manifold from leaking along a portion of the electrical conductor which passes through the insulator and the stabilizer.
18. The heater assembly of claim 1, further comprising an atmospheric support tube coupled to the base plate assembly so as to support the heater assembly within the wafer processing chamber.

19. The heater assembly of claim 18, wherein the atmospheric support tube includes cooling ducts therein adapted to carry heat away from the base plate assembly.
20. The heater assembly of claim 1, further comprising a source fitting coupled to the sleeve and adapted to allow fluid to pass into the hollow interior of the sleeve.
21. The heater assembly of claim 1, further comprising a return fitting coupled to the sleeve and adapted to allow fluid to pass out of the hollow interior of the sleeve.
22. The heater assembly of claim 1, wherein the conductor is coiled within the interior of the sleeve.
23. The heater assembly of claim 1, further comprising at least one orifice located at the non-airtight junction at the first end of the sleeve adapted to permit a purge gas to leak from the hollow interior of the sleeve into the wafer processing chamber.
24. A heater assembly for a wafer processing chamber, comprising:
 - an electrically operated heating element supported by a pedestal having a hollow interior;
 - a sleeve disposed within the hollow interior of the pedestal and itself having a hollow interior;
 - an electrical conductor disposed within the hollow interior of the sleeve and connected to the electrically operated heating element; and
 - a base plate assembly adapted to support the sleeve within the hollow interior of the pedestal and to provide a manifold for a purge gas to be provided to the hollow interior of the sleeve during wafer processing operations.
25. The heater assembly of claim 24, wherein the base plate assembly is coupled to the pedestal and adapted to provide a seal at a first end of the sleeve and at a first end of the pedestal where each contacts the base plate assembly.

26. The heater assembly of claim 25, wherein the seal at the first end of the sleeve is an airtight seal.
27. The heater assembly of claim 25, further comprising at least one orifice located at a non-airtight junction at a second end of the sleeve adapted to permit the purge gas to leak from the hollow interior of the sleeve into the hollow interior of the pedestal.
28. The heater assembly of claim 27, further comprising a second orifice located at a non-airtight junction at a second end of the pedestal adapted to permit the purge gas to leak from the hollow interior of the pedestal into the wafer processing chamber.
29. A method, comprising:

delivering a purge gas within a sleeve surrounding an electrical conductor associated with an electrically operated heating assembly of a wafer processing chamber so that the purge gas envelopes the electrical conductor within the sleeve and escapes from an unsealed end thereof into the processing chamber to be pumped out with process gases.